Ryabchikov, P. I., and G. G. Nikalaeva. 1963. Settlement on wood of the larvae of *Teredo navalis* L. (Teredinidae, Mollusca) in the Black Sea. Trudy Inst. Okeanol., Akad. Nauk. SSSR, 70: 179–185.

Schellema, R. S., and R. V. Truitt. 1954. Ecological factors related to the distribution of *Bankia gouldi* Bartsch in Chesapeake Bay. Chesapeake Biol. Lab., Publ. 100, 31 pp.

Smith, M. L. 1963. The teredinidae of the Queensland coast from Cairns to Brisbane. Unpublished MSc. thesis, Zoology, Univ. Queensland, Brisbane, 206 pp.

Stone, A. N., and D. J. Reish. 1965. The effect of fresh water runoff on a population of estuarine polychaetous annelids. Bull. So. California Acad. Sci., 64:111–119.

Townsley, P. M., R. A. Richy, and P. C. Trussell. 1966. The laboratory rearing of the shipworm, *Bankia setacea* (Tryon). Proc. Nat. Shellfish. Assoc., 56:49–52.

Trussell, P. C. 1967. Teredine borers. Sea Frontiers, Internat. Oceanogr. Found., 13:235–243.

Turner, R. D. 1966. A survey and illustrated catalogue of the teredinidae (Mollusca: Bivalvia) Harvard Univ. Cambridge, Massachusetts, 265 pp.

Watson, C. J. J. 1936. Marine borers destroying timber in the port of Brisbane. Pp. 10–30 *in* Destruction of timber by marine organisms in the port of Brisbane. (C. J. J. Watson *et al.*) Queensland Forest Serv. Bull., 12:x + 107 pp.

———. 1957. Studies in marine organisms attacking timber: The effect of stream flow on salinity and destruction of Turpentine piling by marine borers in the Brisbane River. Queensland Forest Serv., Forest Prod. Res. Notes, Project Q.P. 8, no. 6, 28 pp.

White, F. D. 1929a. Studies on marine wood borers. III. A note on the breeding season of *Bankia (Xylotrya) setacea* in Departure Bay, B. C. Contrib. Canad. Biol. Fish., (n.s.) 4:19–25.

———. 1929b. Studies on marine wood borers. II. Effect of experimental variations in salinity and hydrogen ion concentration upon the wood borers of the Pacific Coast of Canada. Contrib. Canad. Biol. Fish., (n.s.) 4:11–18.

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TWO NEW SPECIES OF POLYCHAETOUS ANNELID WORMS FROM BAFFIN BAY AND THE DAVIS STRAIT

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Abstract: Two new species of polychaeta of the families Lumbrineridae and Scalibregmidae from Baffin Bay and the Davis Strait are described. Both species occur in relatively deep water and were obtained by qualitative dredge hauls. A table emphasizing some taxonomic characteristics of some scalibregmid genera is presented.

During August 1968, the author participated on the shakedown cruise of the National Science Foundation's new polar research vessel, the R/V HERO to the waters of the Labrador Sea, Baffin Bay, and the Davis Strait. The present paper describes two new species of polychaeta in the families Lumbrineridae and Scalibregmidae. The type material is deposited in the United States National Museum, Washington, D. C. Complete results of the cruise are being compiled and will be published in a subsequent paper.

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Family Lumbrineridae

Lumbrineris fauchaldi, new species

Figure 1

Material examined: Davis Strait (lat. 66° 29′ N–long. 57° 26′ W), HERO Station 28D, collected 17 August 1968, dredged in 580–610 m on a bottom of soft mud (7 specimens, TYPE).

Description: The material consists of 7 specimens, only one of which is complete (Holotype). The holotype is coiled, contains approximately 80 setigerous segments and measures about 10 mm in length. The longest anterior fragments measure 12 mm (44 setigers) and 15 mm (65 setigers) in length. The specimens are light tan in color with no body pigmentation.

The prostomium is conical and slightly longer than wide (Fig. 1a). There are no visible nuchal organs or eyes. The two peristomial segments are achaetous and similar in size. There are paired anterior prolongations of the first peristomial segment.

The body is rather slender, tapering at the posterior end and terminating in two anal cirri (Fig. 1b). One specimen had three anal cirri (Fig. 1c).

Setigers throughout are wider than long. The parapodia contain short rounded presetal and postsetal lobes. Setigers 1–10 contain fascicles of limbate setae. Thereafter, the dorsalmost setae in the fascicle exhibit blunted ends. These blunt setae grade into hooded hooks over succeeding setigers. The fully developed hooks do not occur until setigers 25–35. Some of the limbate setae of setigers 20–50 contain greatly enlongated capillary tips (Fig. 1d). The hooded hooks completely replace the limbate setae in the last ⅓ of the body. Hooded hooks are multidentate with about 10 small teeth, of which the lowermost tooth is only slightly thicker than the rest (Fig. 1e). The acicula are yellow, straight, and may number two per parapodium in posterior setigers.

The pharyngeal apparatus is as follows (Fig. 1f): the maxillary carriers are short and sharply pointed, with a weak lateral notch; maxilla I has a weakly curved tip with no distinct teeth along the inner margin; each maxilla II has five teeth on the inner margin and a posteriorly directed lateral prolongation; each maxilla III and IV has one tooth; the mandibles were not observed.

Distribution: Davis Strait, depth ranging from 580–610 m.

Remarks: *Lumbrineris fauchaldi* belongs to species group II.b.l. (Fauchald, 1970), in which there are simple hooded hooks, which are multidentate in posterior setigers; maxilla III has one tooth. Approximately 35 species have been assigned to this group by Fauchald (1970). Of these, six are known to have limbate setae in median setigers with prolonged hair-like tips. Each of these species occurs in deep water. These species are *L. abyssorum* (McIntosh, 1885), *L. ehlersii tenuisetis* (McIntosh, 1885), *L. longensis* Hartman, 1960, *L. moorei* Hartman, 1942, *L. neozealaniae* (McIntosh, 1885), and *L. punctata* (McIntosh, 1885).

Lumbrineris abyssorum was described from 2,225 fathoms off western South America from fragmentary specimens in which the hooks had

TABLE 1. Some taxonomic characteristics of five genera of the Scalibregmidae having anterior acicular setae.

Genera	Branchiae	Parapodial Processes	Acicular Setae	Reference
Asclerocheilus Ashworth, 1901	Absent	Absent	Present in both rami of Setigers 1–3	Ashworth, 1901 Fauvel, 1927 Day, 1967
Cryptosclerocheilus new genus	Present Setigers 2–5	Absent	Limited to both rami of Setiger 2	This paper
Parasclerocheilus Fauvel, 1928	Present Setigers 2–7	Ventral cirrus on posterior setigers	Limited to notopodia of Setigers 1–4	Fauvel, 1928 Day, 1961
Sclerobregma Hartman, 1965	Absent	Dorsal and ventral cirri in posterior setigers	Limited to both rami of Setiger 1	Hartman, 1965
Sclerocheilus Grube, 1863	Absent	Ventral cirrus on posterior setigers	Present in both rami of Setigers 1–3	Ashworth, 1901 Fauvel, 1927

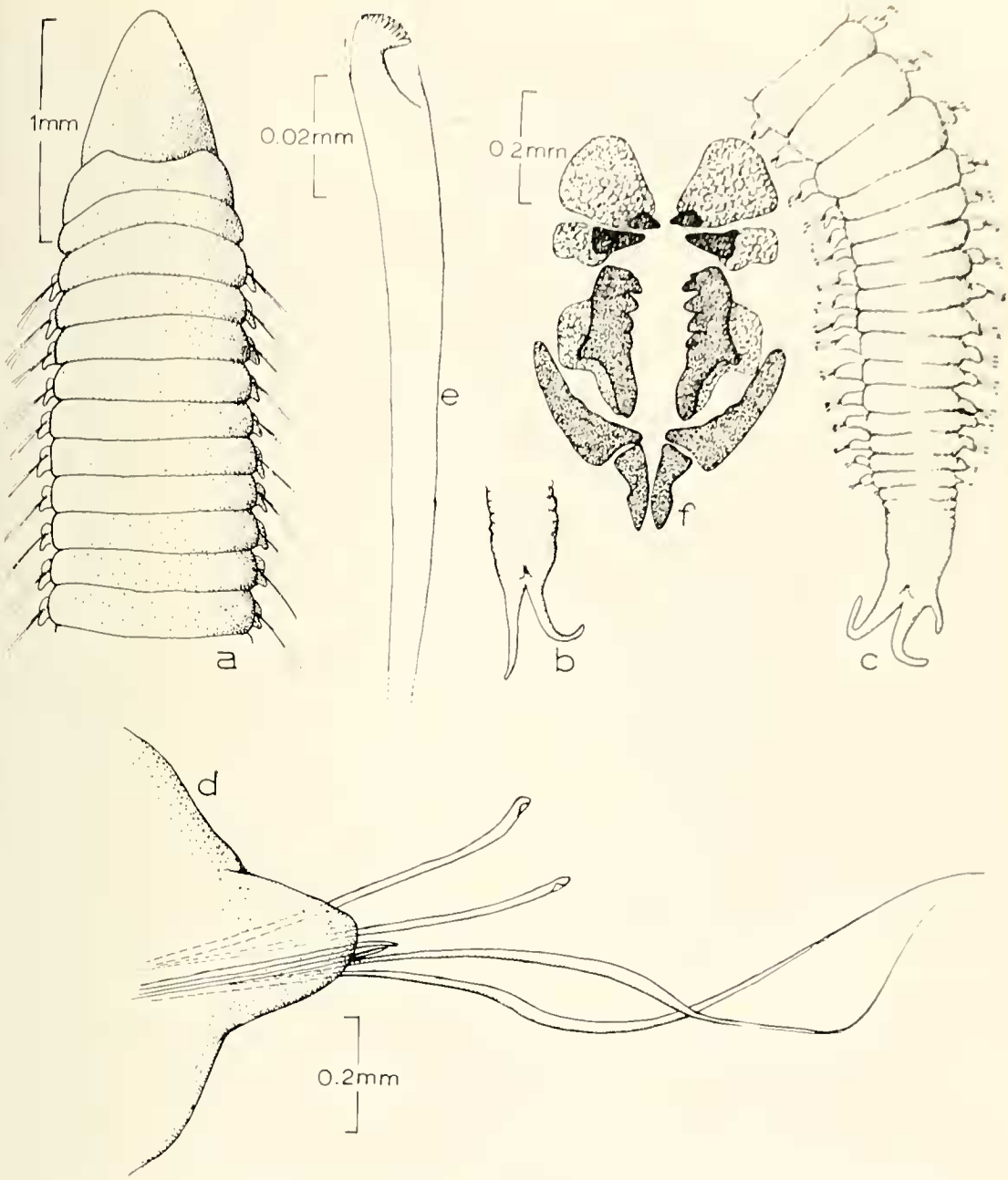
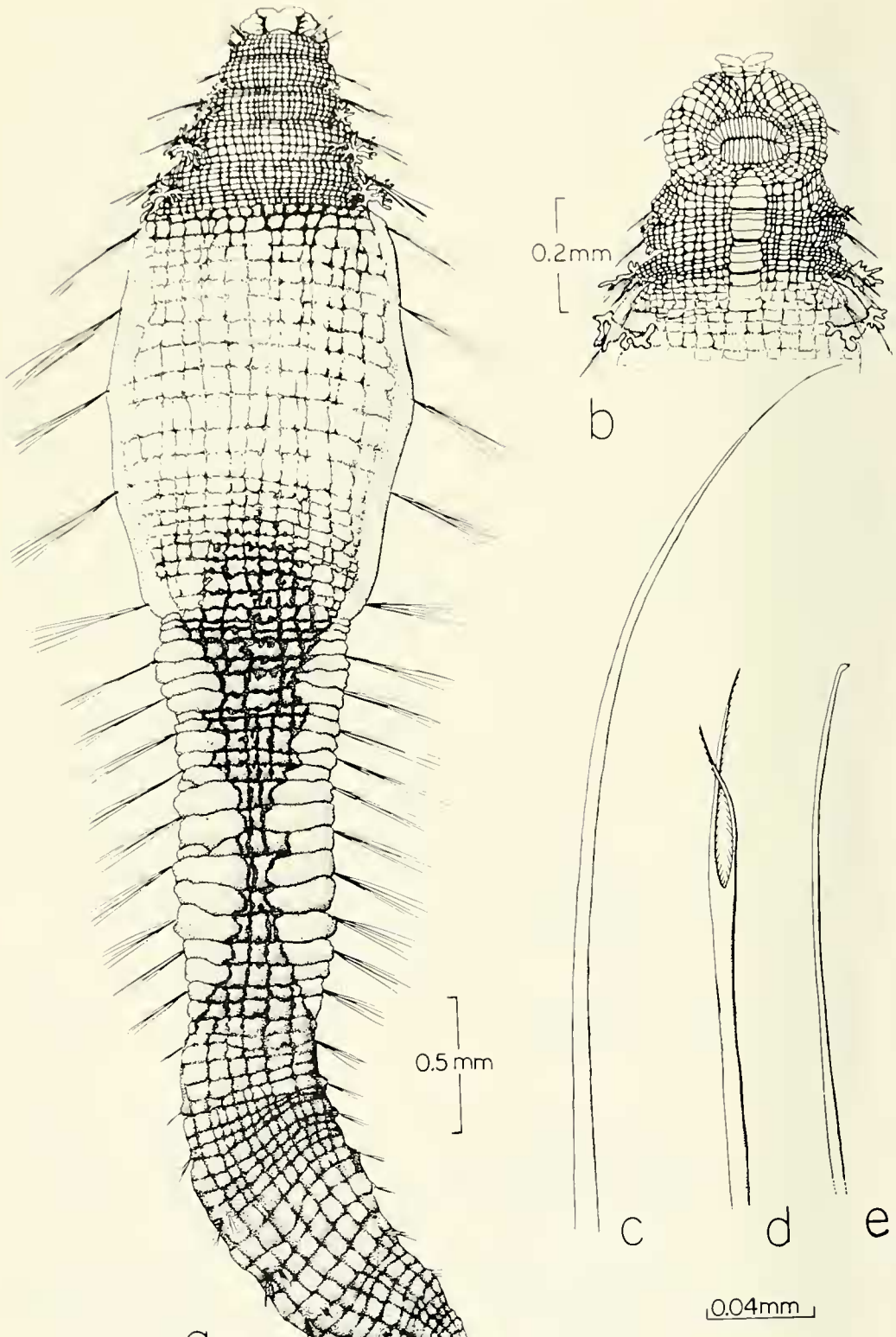


Figure 1. *Lumbrineris fauchaldi*, new species: a, anterior end in dorsal view; b, posterior end in dorsal view; c, posterior end in dorsal view; d, setiger 35 in anterior view; e, hooded hook from mid-body setiger; f, pharyngeal apparatus; a–c all to the same scale.

been lost or broken; *L. ehlersii tenuisetis* from off northeastern North America in 1,340 fathoms has five teeth on each side of maxilla II and two teeth on maxilla III; *L. longensis* has prolonged pre- and postsetal lobes in posterior setigers, in addition to black acicula; *L. moorei* has hooks from approximately setiger 25, but there are no transitional setae as in *L. fauchaldi*; *L. neozealaniae* was apparently described from a group of species and type material needs to be reexamined; and *L. punctata* has only two teeth on the left side of maxilla II and three on the right.


0.2mm
b
0.5 mm
a
c
d
e
0.04mm

It is a pleasure to name this species for Dr. Kristian Fauchald of the Allan Hancock Foundation, University of Southern California, in recognition of his monographic work on the superfamily Eunicea.

Family Scalibregmidae

Cryptosclerocheilus, new genus

Type species: *Cryptosclerocheilus baffinensis*, new species.

Diagnosis: Body fusiform and elongated. Prostomium T-shaped, with two long frontal lobes. Without eyes. Peristomium achaetous. Proboscis unarmed. Branchiae limited to anterior segments. Parapodial lobes reduced to short elevations throughout the body; no cirriform processes present in either anterior or posterior regions. Lateral organs not evident. Acicular setae delicate and limited to setiger 2 where they occur in both the neuropodium and notopodium. Furcate setae begin on setiger 3 and continue on succeeding segments. Pygidium a simple lobed ring.

Remarks: *Cryptosclerocheilus* belongs to the group of genera having anterior acicular setae and a reduction in parapodial lobes and processes. The relationship of *Cryptosclerocheilus* with related genera is presented in table 1.

Cryptosclerocheilus baffinensis, new species

Figure 2

Material examined: Southern Baffin Bay (lat. 67°49' N—long. 60°46'W to lat. 67°38'N—long. 60°38'W). HERO Station 26, collected 16 August 1968, dredged in 1,830 m, on a bottom of brown sticky mud (4 specimens, TYPE).

Description: Length up to 55 mm, width up to 6 mm at the inflated portion. Segments number 24 to 30 in the four specimens available. The body is greatly inflated through segments 6 to 10. Thereafter it narrows to a slender abdominal region. The entire body is areolated and marked off with small rectangular raised areas (Fig. 2a). The parapodia are reduced throughout the body. There are no parapodial processes. The posterior end terminates in a simple lobed ring.

The prostomium is bifid with two prominent lobes (Fig. 2a, b). There are no eyes. The base of the prostomium is retracted into the achaetous buccal segment. The first setiger contains only capillary notosetae and neurosetae (Fig. 2c). The notosetae of setiger 2 are arranged in two tiers: the first group contains slender curved acicular setae (Fig. 2e) and a few furcate setae; the second group are long capillaries. The neurosetae have a similar arrangement, except that there are more of the acicular and furcate setae and fewer capillaries. The furcate setae completely replace the acicular setae on setiger 3. This arrangement of one bundle of capillary setae and another bundle of smaller furcate setae continues on succeeding setigers to the end of the body. The furcate setae have one tine longer than the other. Each tine is spinous along the inner border (Fig. 2d).

Distribution: Southern Baffin Bay, depth of 1,830 m.

LITERATURE CITED

Ashworth, J. H. 1901. The Anatomy of *Scaligregma inflatum* Rathke. Quart. J. Micro. Sci., 45:237–309.

Day, J. H. 1961. The polychaete fauna of South Africa. Part 6. Sedentary species dredged off Cape coasts with a few new records from the shore. J. Linn. Soc. Zool., 44:463–560.

———. 1967. A monograph on the Polychaeta of Southern Africa. Part 2. Sedentaria. The British Museum (Natural History), publication 656:459–878.

Fauchald, K. 1970. Polychaetous annelids of the families Eunicidae, Lumbrineridae, Imphitimidae, Arabellidae, Lysaretidae and Dorvilleidae from western Mexico. Allan Hancock Monogr. Mar. Biol., (6):1–335.

Fauvel, P. 1927. Polychètes Sédentaires, addenda aux Errantes. Archiannelides. Myzostomaires. Faune de France, 16:1–492.

———. 1928. Annélides polychètes nouvelle de l'Inde. Pt. 2. Bull. du Museum National d'Histoire Naturelle, Paris, 34:159–165.

Hartman, O. 1942. The identity of some marine annelid worms in the United States National Museum. Proc. U. S. Nat. Mus., 92(3142):101–140.

———. 1960. Systematic account of some marine invertebrate animals from the deep basins off

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Figure 2. Cryptosclerocheilus baffinensis, new species: a, entire animal in dorsal view; b, anterior end in ventral view; c, capillary seta from anterior setiger; d, furcate seta from setiger 3; e, acicular seta from setiger 2.

southern California. Allan Hancock Pacific Exped., 22:69–216.

———. 1965. Deep water benthic polychaetous annelids off New England to Bermuda and other North Atlantic areas. Allan Hancock Found. Occas. Pap., (28):1–378.

McIntosh, W. C. 1885. Report on the Annelida Polychaeta collected by H.M.S. CHALLENGER during the years 1873–76. Challenger Repts. Zool., 12:1–554.

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FLUCTUATIONS IN POPULATION DENSITY OF THE HISPID COTTON RAT: FACTORS INFLUENCING A "CRASH"

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Abstract: A population of hispid cotton rats, *Sigmodon hispidus*, inhabiting a remnant grassland in west-central Kansas, near the northern limit of the range of the species, was live-trapped from April of 1965 through February of 1969. Until 1968, the population exhibited a pronounced annual cycle of abundance, varying from most abundant in autumn to least abundant in spring. Annual declines began at the time of normal cessation of breeding with the onset of winter, and were augmented by harsh winter weather. Monthly ecological densities ranged from 0.0–65.5 rats per hectare in the favored habitat. Population turnover was 92 percent complete in six months. In 1968, the population continued to exhibit a typical, seasonal pattern of fluctuation until autumn, but then underwent a "crash" that completely decimated the population. Biotic and environmental factors that might have influenced the crash included normal autumnal cessation of breeding coupled with predation, parasitism, and severe weather conditions. The balance between adverse winter weather and physiological and behavioral adaptations to survive suboptimal weather conditions probably is largely responsible for the location of the northern limit of the geographic range of *S. hispidus*.

During the course of ecological and physiological studies on cotton rats, *Sigmodon hispidus*, inhabiting a remnant grassland in west-central Kansas, we had the opportunity to monitor a "crash" in population density. Inasmuch as the population under study was near the northern limit of distribution of the species (Hall and Kelson, 1959: 673), we anticipated that analysis of factors that influenced the crash might reveal natural mechanisms that regulate northern dispersal of this immigrant Neotropical species. Therefore, the purposes of this paper are: 1) to present data on population dynamics of cotton rats at the latitude of Kansas; 2) to summarize factors that regulate annual fluctuations in population density of cotton rats; and 3) to relate those factors to the delicate balance between adaptation and environment that determines the location of the northern limit of distribution of the species.

METHODS

The 5.6-hectare remnant prairie in which the study was conducted is in the southeastern quarter of section 1, T. 14S, R. 19W, Ellis County, Kansas. The study area consists of six vegetative communities (Brock, 1968) that have remained relatively undisturbed in a climax condition for more than 60 years (Martin, 1960). Cotton rats were live-trapped, marked, and released during the first half of all but two months from April of 1965 through February of 1969. Both the study area and the procedures followed in gathering data were described in greater detail by Fleharty and

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